



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D119-796-141
Job Sheet 183785



Part No: D119-796-141

Job Qty: 1 ea

Part Name: Fwd Crosstube Installation Without Step (No Hardware)



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 9/26/18

Job Tracking No:

Due Date: 10/12/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DRWG D119-795-141 REV.H IPP REV:C 14.11.19 AS PER REV.C DD VERF:JLM IPP REV:D 14.12.12 AS
PER REV.pd1 DD VERF:JLM IPP REV:E 15.02.11 AS PER REV F JLM VERIFIED BY:DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	10/12/18	10/12/18	0.00	0.00	Start Up Crosstubes-1		GP 2018-09-26
130	CNC Bend Crosstubes	1 pcs	10/12/18	10/12/18	0.00	3.85	CNC Bend Crosstube		GP 2018-09-26
140	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC15		GP 2018-09-26
145	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	3.06	Crosstubes-1		GP 2018-09-26
150	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	3.06	Crosstubes-1		GP 2018-09-26
160	HandFXtube	1 pcs	10/12/18	10/12/18	0.00	1.49	HandFinish5		GP 2018-09-26
175	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC7-1		GP 2018-09-26
180	Outsource	1 pcs	10/12/18	10/12/18			SKY002-VC	2	OCT 01 2018
190	Packaging	1 pcs	10/12/18	10/12/18	0.00	0.00	Packaging1-1		OCT 02 2018
200	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC5		GP 2018-09-26
230	SprayPaint	1 pcs	10/12/18	10/12/18	0.00	1.36	Spray Paint		GP 2018-09-26
240	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC14		GP 2018-09-26
242	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	3.06	Crosstubes-1		GP 2018-09-26
244	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC5		GP 2018-09-26
246	SprayPaint	1 pcs	10/12/18	10/12/18	0.00	1.36	Spray Paint		GP 2018-09-26
248	SprayPaint	1 pcs	10/12/18	10/12/18	0.00	1.36	Spray Paint		GP 2018-09-26
250	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC14		GP 2018-09-26
252	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	3.06	Crosstubes-1		GP 2018-09-26
260	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC5		GP 2018-09-26
275	DC	1 pcs	10/12/18	10/12/18	0.00	0.00	DC		N/R
290	Packaging	1 pcs	10/12/18	10/12/18	0.00	0.00	Packaging3-1	L6050	GP 2018-09-26
300	QC21-FG	1 Ea	10/12/18	10/12/18	0.00	0.00	QC21		GP 2018-09-26

Part Op 130 - Bend tube as per Dwg D119-796-141 using CNC bender program

Descriptions: 145 - 1- CUT TUBE AT HEIGHT ON FAI SHEET 2- VERFY HEIGHT: _____ BY QC15 LEVEL _____

INSPECTOR: _____ 3- DEBURR CUT SURFACE

150 - ***** ENSURE PROPER JIG POSITIONING ***** ENSURE PROPER JIG POSITIONING

***** 1-DRILL TUBE AS PER DWG USING DT _____ 2- DRILL RIVET HOLES USING DT8787 FWD 3-
DEBURR AND C'SINK RIVET HOLES AS PER DWG 4- FLIP TUBE, REPEAT STEP 2 AND 3 5- SCRIBE PART# AND
BATCH# USING VIBRATING STYLUS ON INSIDE OF CUFF AS PER DWG D119-796-141 6- INSPECT AND REMOVE
ALL MARKS FROM TUBE WITHIN LIMITS ON DWG D119-796-141

160 - ***IMMEDIATELY AFTER GRINDING*** 1- handfinish X-TUBE INSIDE AND OUT 2- ALODINE AND ACID ETCH
X-TUBE INSIDE AND OUT AS PER QSI005.

180 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or
Issue P/O: _____ LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

DAS
38
9-89

190 - Ensure copy of NDT results attached to work order.
200 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D119-796-141
230 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____ ***VERIFY BY _____ PART # TO MATCH W/O _____ ***MASK SCRIBE B# & P# AND VERIFY*** 1- Prime Inside of tube. 2- Install nut plates as per dwg (D2873-043) 3- Mask cuffs per note#2. 4- Prime exterior of tube per QSI005. Primer Batch: 138877 Start Time: _____ Finish Time: _____
240 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____
242 - Assemble as per dwg D119-796-141 and Qsi 015 1- Abrade mating surfaces with Scotch Brite 7447 and clean with Dupont 4105s or equivalent as per dwg. 2- Install D5152-041 with proseal 890 on concave surface, 0.100" MIN thick as per dwg using DT10089 (identified righ and left) ****MAINTAIN CLAMPING PRESSURE ON FOR MIN 72HRS***** Proseal Batch: 5096394 EXP: 3/19 PROSEAL CURE TIME 72 HOURS: Start: 18-9-29 Finish: 18-10-2 3- Install support and shim using proseal 890 per dwg and clamp in position.
244 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____
246 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____ 1- Remove all non-fixed hardware and clean any excess proseal. 2- Scuff tube with Scotch Brite 7447. 3- Mask cuff per note#2. 4- Prime as per dwg and QSI005 5- Apply matte clear as per dwg and QSI005 Clear Batch: 138832 Primer 138877
248 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____ 1- Mask underside of tube as per dwg. Mask cuff per note#2. 2- Scuff tube with Scotch Brite 7447 3- Paint outside of crosstube Paint Batch: 138949
250 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____
252 - 1- Re-install non fixed hardware per dwg ***Torque all clamps to 80-100 IN-LBS. *** 2- Apply a filet-seal of proseal 890 around supports. Allow proseal to dry before inspecting. Proseal 890 Batch: _____ EXP: _____ PROSEAL CURE TIME 72 HOURS: Start: _____ Finish: _____
260 - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED AS PER DWG.*** ***VERIFY BY _____ BATCH # TO MATCH W/O _____
275 - Photocopy bluefile and create labels as per PPP D119-796-141 chg 004
290 - Identify and pack for shipping as per PPP D119-796-141
OA w/o 174922

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D119-796-141TRN	Crosstube Turning Detail	1 Ea (1 ea)	90-Start up Operation	<u>5112427</u>
CR3212-4-08	Rivet	16 Ea (16 ea)	242-Crosstubes	
D2873-043	Nut Plate Assembly	4 Ea (4 ea)	242-Crosstubes	
D5123-3	Clamp Cushion	4 Ea (4 ea)	242-Crosstubes	
D5124-1	Fwd Support	2 Ea (2 ea)	242-Crosstubes	
D5152-041	Fwd Post Mount Assembly	2 Ea (2 ea)	242-Crosstubes	
D5305-1	Shim	2 Ea (2 ea)	242-Crosstubes	
MS21920-24	Clamp	4 Ea (4 ea)	242-Crosstubes	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D119-796-141TRN	1	3	0
242-Crosstubes	CR3212-4-08 <u>50716570</u>	<u>16</u> <u>505845715</u>	136	0
	D2873-043 <u>5089003</u>	<u>4</u>	73	0
	D5123-3 <u>F160079</u>	<u>4</u>	289	0
	D5124-1 <u>5082094</u>	<u>2</u>	18	0
	D5152-041 <u>5089481</u>	<u>2</u>	12	0
	D5305-1 <u>5070880</u>	<u>2</u>	19	0
	MS21920-24 <u>5034405</u>	<u>4</u>	68	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Crosstube Assembly (AW119 MKI Fwd)	6.000Inches ± 0.030	6.030 5.970		
2	Crosstube Assembly (AW119 MKI Fwd)	2.516Inches ± 0.005	2.521 2.511		
3	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches + 0.005 - 0.000	2.338 2.333		
4	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches + 0.005 - 0.000	2.338 2.333		
5	Crosstube Assembly (AW119 MKI Fwd)	2.408Inches + 0.005 - 0.000	2.413 2.408		
6	Crosstube Assembly (AW119 MKI Fwd)	2.502Inches	2.507		

			+ 0.005	2.502
			- 0.000	
7	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches	+ 0.005 - 0.000	2.601 2.596
8	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches	+ 0.005 - 0.000	2.601 2.596
9	Crosstube Assembly (AW119 MKI Fwd)	6.000Inches	± 0.030	6.030 5.970
10	Crosstube Assembly (AW119 MKI Fwd)	2.516Inches	± 0.005	2.521 2.511
11	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches	+ 0.005 - 0.000	2.338 2.333
12	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches	+ 0.005 - 0.000	2.338 2.333
13	Crosstube Assembly (AW119 MKI Fwd)	2.408Inches	+ 0.005 - 0.000	2.413 2.408
14	Crosstube Assembly (AW119 MKI Fwd)	2.502Inches	+ 0.005 - 0.000	2.507 2.502
15	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches	+ 0.005 - 0.000	2.601 2.596
16	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches	+ 0.005 - 0.000	2.601 2.596
17	Crosstube Assembly (AW119 MKI Fwd)	102.260Inches	± 0.020	102.280 102.240

Plex 9/26/18 10:15 AM Dart.lajeunesse.marie



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CANADA
TEL.: 1 813 632-6200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S113698



Part: D119-796-141

Job No: 183785

Serial No/Batch: S113698

Revision: F,H

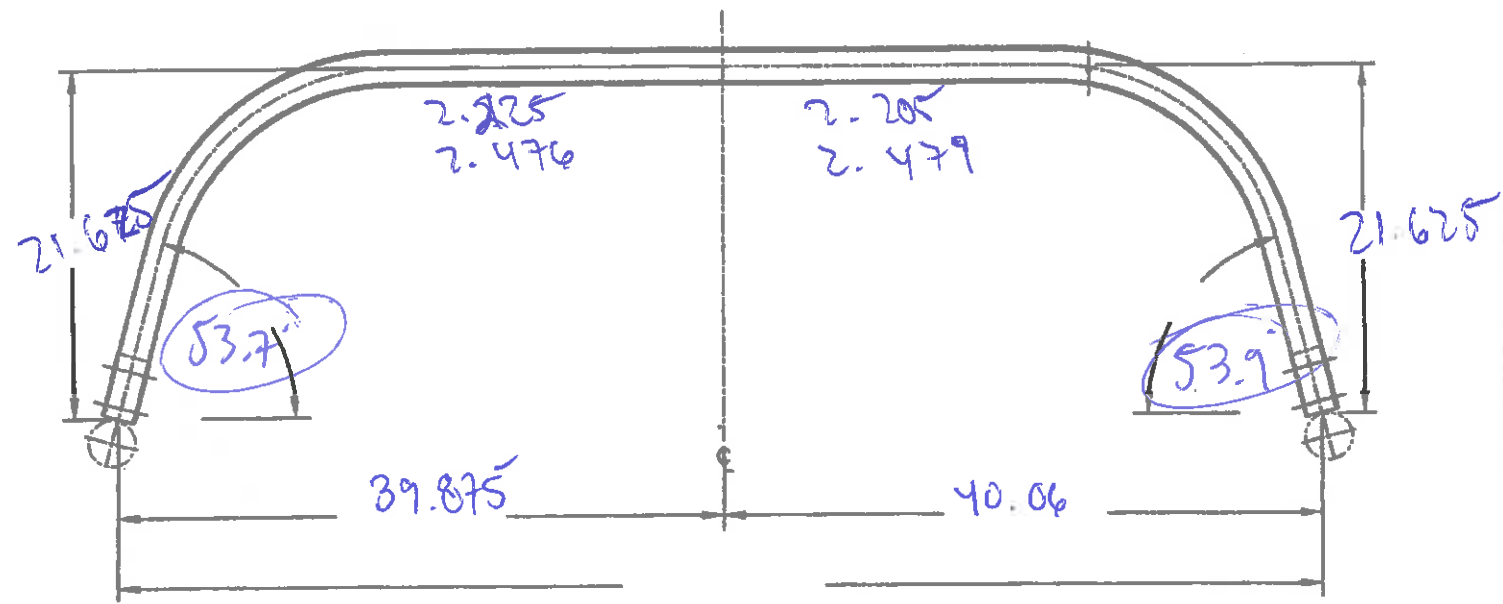
Inspector:

Exp Date:

Instructions: TC STC SH14-45-1, Issue 1, EASA STC SR03504NY 15/01/28, EASA

DART AEROSPACE LTD		Work Order: 183788
Description: Crosstube Fwd, with Step		Part Number: D119-796-141
Inspection Dwg: D119-796-141	Rev: H	Page 1 of 1

Required Dimension	Min	Max
Height	21.490	21.750
1/2 Span	39.820	40.080
Angle	54°	57°
Total Span	79.640	80.160
Bending Passes	8	--
Crushing	--	6.8%



	Side A	Side B
Bending Passes	13	13
Crushing	5.3%	5.8%
Comments		

QC15 Inspection	DAS 38 9-80
Date	18-09-25

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue	KJ	
B	15.11.12	Dwg Rev updated	KJ	
C	16.01.15	Dwg Rev updated	KJ	4p

Entered:

Date:

NCR No. 19-7296

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only



MD
Jul. 11, 2019

Job: 183785		DISPOSITION		DEPARTMENT/PROCESS		Engineering	
Part No. D119-796-141		Rework Scrap Use-as-is ☒		Cross tube Small Fab Finishing		Water Jet Supplier Quality	
Date: 16/5/25		Sequence #:		QTY Affected:		MRB (QSI042)	
Description Work Order Deviation		Disposition				Completed By 12 16/5/25	
Angles under tolerance after bedding. Min angle = 53.7°		Acceptable				Lead hand / Supervisor 19-07-11	
QC / QA Coordinator DAS 55 9-89 19-7-11							
Root Cause		FAULT CATEGORY					
Operator ☒		Pressure/Forced		Power Loss/Surge		Positioned Wrong	
Manufacturing Process ☒		Bending		Folio/Program		Outside Tolerance	
Equip/Tooling ☒		Crushing		Grain Direction		Drawing	
Handling/Preservation ☒		Cracks		Weld		Finish	
Material ☒		Crimp/Kink/Ripple/Wave/Twist		Wrong Stock Pulled		Part Lost/Missing	
Product Improvement ☒		Marks/Chatter		Out of Sequence		Misread	
Process Improvement ☒		Mislabeled		Off-set/Set-up			
Human Factors ☒		Other/Details:					



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
PO041149

Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

PO No: PO041149
PO Date: 9/26/18
Due Date: 10/3/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Tsimiklis, ChrisoulaPhone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	80152	D119-796-141	Fwd Crosstube Installation Without Step (No Hardware) : TC STC SH14-45-Issue 1, FAA STC SR03504NY 15/01/28, EASA STC 10052022 Revision 1 15/02/13, DGCA INDIA LoA 07-09/2011-AED (Part) 15/07/16, BRAZIL STC 2015S07-16 15/07/30, CAAP PHILIPPINES LoA 16/05/11, CHINA VSTC0757 16/07/22, RUSSIA STC CT316-A119 16/08/11, DGAC INDONESIA STC SR025 18/02/19 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: _____ LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed	-	9/28/18	1 pcs	0 pcs	1 pcs	\$266.25/pcs	\$266.25
183785				Firmed	-	9/28/18	1 pcs	0 pcs	1 pcs	\$266.25/pcs	\$266.25
Sub Total:							2	0	2		\$532.50



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1270 Aberdeen St
Hawkesbury, ON
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Canada

PURCHASE ORDER
PO041149

Tel (613) 632-5200

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
2	1827	D119-796-241	Aft Crosstube Installation Without Step (No Hardware) : TC STC SH14-45-Issue 1, FAA STC SR03504NY 15/01/28, EASA STC 10052022 Revision 1 15/02/13, DGCA INDIA LoA 07-09/2011-AED (Part) 15/07/16, BRAZIL STC 2015S07-16 15/07/30, CAAP PHILIPPINES LoA 16/05/11, CHINA VSTC0757 16/07/22, RUSSIA STC CT316-A119 16/08/11, DGAC INDONESIA STC SR025 18/02/19 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***	Firmed	-	9/28/18	1 pcs	0 pcs	1 pcs	\$266.25/pcs	\$266.25
3	180615	D4464-1841	Fuel Tank Assembly : Various STC's ISSUE P/O LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	Firmed	-	9/28/18	1 pcs	0 pcs	1 pcs	\$266.25/pcs	\$266.25
Grand Total:										\$1,065.00	

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.



Work Order Traveler
Sky Service F.B.O. Inc.

0105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 585

WO #: MWO37600	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO041149 ✓
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	

Task: UNSCHEDULED	Sequence: 1
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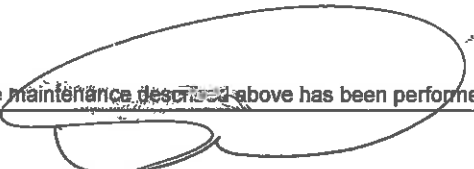
Work Required:

CARRY OUT NDT ON:

- 1 FUEL TANK ASSY, P/N# D4464-041 , J/S# 180615 ✓
- 1 AFT CROSSTUBE , P/N# D119-796-241 , J/S# 182277 ✓
- 2 FWD CROSSTUBES , P/N# D119-796-141 , J/S# 180152 , 183785 ✓

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417 REV. 16						SEP 27 2018	
NO CRACK OR LEAK FOUND							
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , DEV. MPO11715 , UV LIGHT M-20142							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp 	Date: SEP 27 2018
Name: RAFIK MELIKYAN		